

UNCLASSIFIED

AD 295 001

*Reproduced
by the*

**ARMED SERVICES TECHNICAL INFORMATION AGENCY
ARLINGTON HALL STATION
ARLINGTON 12, VIRGINIA**



UNCLASSIFIED

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

CATALOGED BY ASTIA

AS AD NO.

295001

A QUESTIONNAIRE STUDY OF ARMY MESS PERSONNEL

Interim Report

29 1963

Astia Availability Notice: "QUALIFIED
R QUES. MAY OBTAIN COPIES OF THIS
REPORT FROM ASTIA."

November 1962



ARMED FORCES FOOD AND CONTAINER INSTITUTE
U. S. ARMY QM RESEARCH AND ENGINEERING COMMAND
CHICAGO 9, ILLINOIS

PROJECT: Human Factors in QM Corps
Operations 7-84-15-007

TASK: Attitudes toward and acceptance
of QM Materiel

PHASE: Establishment of methods for
measuring and predicting
attitudes and acceptance
behavior

A QUESTIONNAIRE STUDY OF ARMY MESS PERSONNEL

Interim Report

by

Jan Eindhoven

Food Acceptance Branch, Food Division

November 1962

Armed Forces Food and Container Institute

A QUESTIONNAIRE STUDY OF ARMY MESS PERSONNEL

The comprehensive Army feeding program culminates in the mess where foods are processed, served, and eaten. This program, consisting of myriad activities, such as development of recipes, design of a master menu, food acceptance studies, procurement and distribution, inspection, etc., provides all messes in the Continental United States with relatively standardized high quality ingredients and meals intended to be acceptable to soldier consumers. Whether actual acceptance for the foods is obtained or not depends on several additional factors; one of these is the quality of the food as served.

Variations in food acceptance between messes had been found in a pilot study that explored consumption under normal feeding conditions. Sixteen company size messes at one Army installation were studied: approximately 1,000 soldiers were administered questionnaires, during meals, on their food consumption. While results of this study were only approximations, they suggest that over a fifth of the dishes offered at the serving line were not taken and that the rates of rejection vary considerably: among mess halls, starch dishes were rejected 30 times oftener in some messes and certain meat dishes eight times oftener. The principal reason for rejection was dislike for the dish in general; however, many of those refusing a dish indicated poor preparation. Of those who ate only part of the food they took, a fifth specified one each of the following reasons: didn't taste right, poor preparation, and poor appearance.

Thus, it appeared that there were considerable differences in acceptance of the same foods between mess halls even at the same installation, and that food preparation was a frequent reason given for lack of acceptance (1).

Mess personnel are the most important determiners of quality of food preparation which is the link between mess personnel and soldier acceptance. It may be hypothesized that the mess personnel's competence and food acceptance are directly related. "Preparation" here is not meant to signify the use of fancy recipes; rather it designates adherence to proper, well tested, conventional procedures in cooking any food item. The term "high consumer acceptance" should refer not only to taking a food and consuming it, but it should have as well, implications of the satisfaction and enjoyment which is possible with good food.

For a pilot investigation of the characteristics of Army mess personnel a questionnaire approach was felt to be the most economical method. A survey of the psychological literature did not reveal prior studies on cooks. Prior to designing an instrument for this study, two rating sheets that have been used for evaluating kitchens and cooks were reviewed. One of these forms is in use by a civilian restaurant chain to rate individual cooks; the second was formerly employed by the Army in inspecting and evaluating the entire mess. The major aspects of the cook's job that were evaluated in these questionnaires include: food preparation, menu planning, administration, food cost control, sanitation, supervision, personal appearance, and dependability. The total possible score for sanitation alone accounts for 28 percent (restaurant) and 40 percent (Army mess) of the over-all score on the inventories. Of course sanitation and the other areas noted are extremely important in the kitchen;

however, most of them are support activities to food preparation -- the prime function of the kitchen. In these inventories, a proportionately small number of items were directly concerned with food preparation. The analysis of the content of these forms suggests that: (1) supportive activities may be overemphasized; (2) quality of preparation may be difficult to specify and evaluate.

The questionnaire used in this study was designed to measure mess personnel variables thought to be closely associated with the quality of the food. This report describes the distribution of answers to indicate what mess personnel do, think, or know concerning their occupation. In most cases where cooks vary in their responses to a questionnaire item, a specific type of response cannot be related to a given degree of effectiveness in food preparation. However, in a few cases, items may have apparent relationship to performance (face validity): examples are knowledge of cooking times, temperatures for certain dishes, and expressions of liking for the job.

Method

The Mess Personnel Questionnaire was a 10 page booklet consisting of a page of instructions and nine pages of questionnaire items. Thirty-six items consisting of multiple choice, ranking, and open-ended questions were developed through personal interviews with Army cooks. The questionnaire is presented in Appendix A.

The study was conducted by personnel from the Quartermaster Research and Engineering Field Evaluation Agency, Ft. Lee, Virginia. The sessions were held in the respondents' mess halls by trained test administrators.

The instructions were designed to motivate the cooks to complete the questionnaires carefully and candidly. Approximately one half hour was required by most respondents to complete the questionnaire. Post-test interviews with a few respondents, as well as with some test administrators, indicated that no special problems were encountered from either the questionnaire format or the items.

Messes were selected from four widely separated Army installations within the United States (New England, Great Plains, Southwest, and Northwest). Sampling was dependent on another completely unrelated study which was run simultaneously. At each installation messes were selected on a random basis, and during the last week of the second study, the mess personnel questionnaire was administered in many of the same messes. In administering the mess questionnaire, test team members were instructed to select from different battalions those messes that in their opinion differed in quality, since differences among cooks should be maximized by wider ranges of mess quality.

Selection of respondents in a given mess depended on their availability as determined by mess stewards. The number of respondents from each installation ranged from 49 to 61. A total of 222 usable questionnaires were obtained from personnel holding job titles from mess steward to cook's helper. The greatest number of respondents were first cooks (98), followed by mess stewards (62), cooks (38), cook's helpers (11), miscellaneous (8)*, and bakers (3). The proportions of personnel in various job titles differed considerably among the installations;

* The miscellaneous category largely consisted of on-the-job trainees.

for example, at one installation 17 cooks and two mess stewards were tested, while at another installation there were three cooks and 20 mess stewards.

The results in this study will largely reflect the responses of two categories of higher-level personnel: mess stewards and first cooks. Significant differences between these and less advanced personnel (cooks and cook's helpers) may be obscured by the disproportionately small number of the latter. For example, the general results on length of Army service and length of duty in the mess in this study are probably biased by the greater proportion of high level personnel who have been in the service longer.

Nearly half of the respondents said that they had lived most of the time, until they were 16 years old, in the East Central or Southeastern areas of the United States. The South Central, New England, Great Plains, and Midwestern areas each contributed six to 14 percent of the respondents. From 0.4 to four percent came from the remaining regions. These proportions were approximately the same at each of the four installations, although there was a slight tendency for a given installation to have slightly greater representation from its own surrounding area.

The data were analyzed by counting the responses to each category for the multiple-choice items. Answers to "written in" questions were scaled or categorized and then totaled. Results are reported as percentages. The percentages of blanks resulting from individual's failure to answer a question were not reported unless such omissions were numerous;

therefore, the sums of the percentages were sometimes less than 100.

Cross tabulations of some of the data were made to detect certain relationships among the questionnaire items, particularly those involving respondent job title, job knowledge, and whether or not he requested assignment to mess duty.

Results

Thirty-six questionnaire items provided data on mess personnel habits and attitudes that might reasonably be expected to affect food preparation. In presenting the results of the study, this behavioral information has been categorized in the following four general areas: (1) training and experience; (2) job interest; (3) opinions of mess personnel; and (4) mess practices.

Training and Experience

Cooking is often described as an art, and as such requires not only knowledge, but technique. Cookbooks and training provide knowledge of the necessary ingredients and steps in preparation; but technique, such as judging the right moment to remove the heat in reducing a sauce to proper consistency, or garnishing a dish, is gained only by actual training in food preparation. How, and to what extent, are Army cooks prepared in this art?

The factors considered under this heading include civilian experience, military experience and training, and two indicators of current status: job title and job knowledge. Although a later section deals with job interest, certain aspects of job interest are also taken up in this section. Thus, the relation of assignment to the mess, whether voluntary or not, to

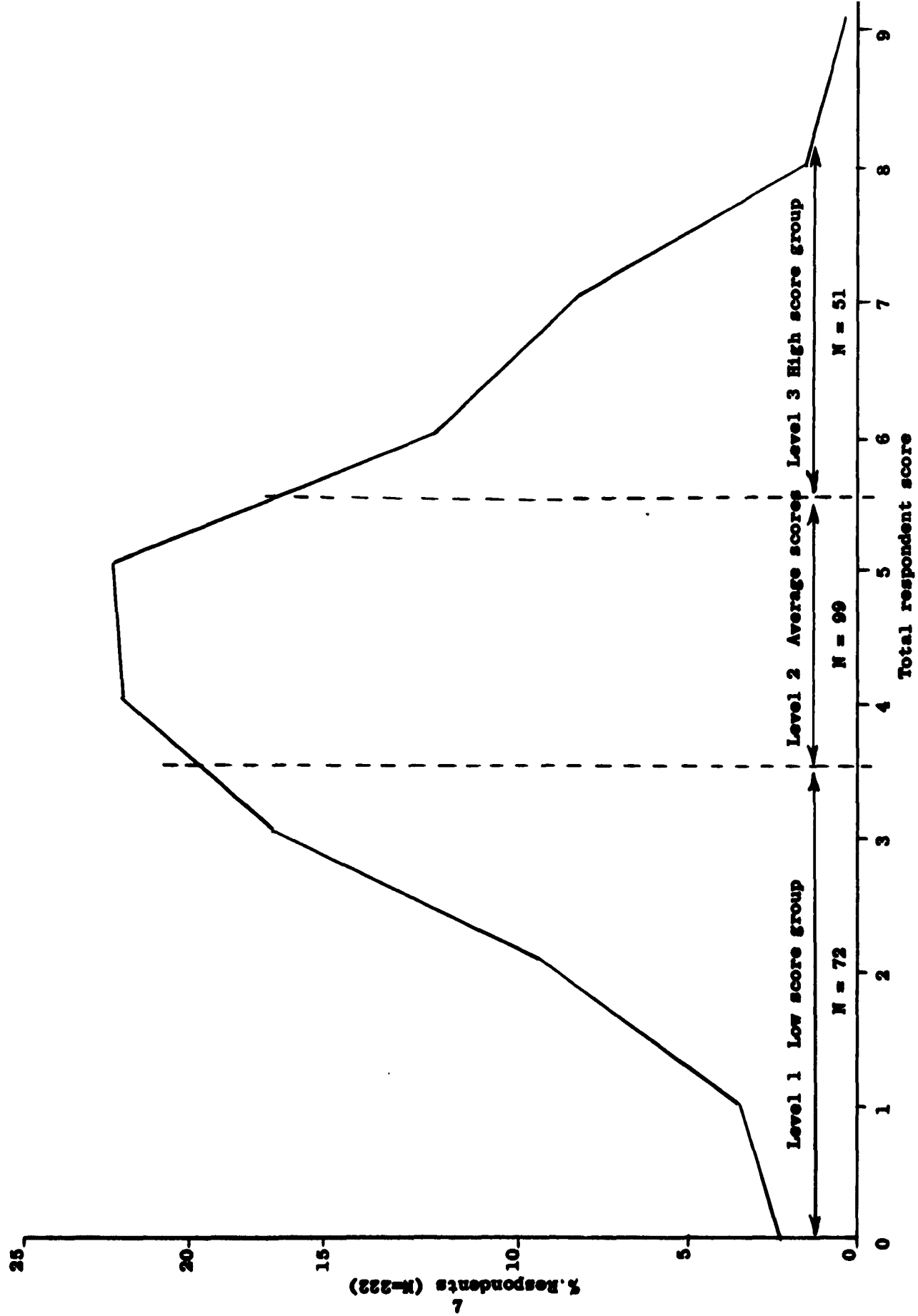


Figure 1. Distribution of job knowledge scores

several aspects of training and knowledge are also discussed in this section.

Job title: The mess personnel were classified into four groups: mess steward, first cook, cook, and cook's helper. A priori, job title was considered a fruitful area to cross-tabulate with other responses because differences in responsibility, experience, and outlook might be expected to affect the questionnaire responses.

Job knowledge: This is an end-product that might be expected from training and experience in addition to capacity, that is, intelligence and interest. Job knowledge was measured by a series of nine test items requiring respondents to indicate proper cooking times and/or temperatures for a variety of foods (see item 36, Appendix A). For all except two of the food items, five response categories were provided in the form of a time or temperature scale continuum. The correct times and temperatures were found in the Army cookbook TM-10-412 (3). Respondents were required to circle the best time (or temperature) category. The correct responses (failure to answer a test item was scored 0) of each respondent to the nine test items were totaled, and the distribution of total scores for all respondents was divided into high, average, and low scorers. Proportions in each category are shown in Figure 1. The respondents' total raw scores for all nine items were slightly positively skewed, indicating greater difficulty for the items than was expected. The average score for all respondents was 4.32: (one respondent answered all the items correctly, one had none correct, and four others left this entire section blank).

Table 1

Percentage of respondents correctly answering job knowledge test items

Test item (food)	Variable	Answer N = 222	
		Correct %	Blank %
Deep fried fresh fish	Time	80	3
Corned beef*	Temp	75	17
Macaroni*	Temp	59	10
Deep fried fresh fish	Temp	54	9
Macaroni	Time	50	3
Corned beef	Time	41	8
Baked potato	Time	40	7
Corn on cob should boil	Time	19	3
Baked potato	Temp	6	6

*Two response categories, boil or simmer; the remaining items had five response categories.

Table 2

Relationship of job title to placement, desire for transfer
and to job knowledge score level

Job title	N	Placement Volunteered (N=164)	Assigned (N=58)	Want transfer Yes N=40	No N=181	Job knowledge scores High Average Low	Interpolated median length of service in years	Total %
Mess Steward	62	32%	17%	12%	87%	26% 39% 34%	13	99
First cook	98	46	38	14	85	23 54 22	12	99
Cook	38	14	26	28	73	16 42 42	4	100
Cook's helper	11	4	9	45	45	18 18 64	2	100

Table 1 presents the proportion of respondents who gave the correct answer to each test item, and the number of blanks. The items have been ranked according to the proportion of respondents passing them. Such ordering reflects the level of difficulty of each item; for example, the time required to fry fish was known by 80 percent of respondents, while the proper temperature for baking a potato apparently was difficult for respondents inasmuch as only six percent knew the correct answer. The questions on temperature were generally easier than questions on time; i.e., greater percentages of individuals knew the correct temperatures.

With regard to job title, the majority of first cooks achieved average job knowledge scores, with just over 20 percent in the upper and in the lower score levels (see Table 2). Few cooks and cook's helpers achieved high level scores and more had low scores than average scores.

Job knowledge score showed a strong relationship to a second type of job knowledge item included in the questionnaire (see item 33, Appendix A). This item asked respondents which of four foods (fried liver, chicken a la king, scrambled eggs, and pancakes) could be kept on a steam table longest without spoiling its quality*. Seventy-four percent of the respondents in the high-score level gave the right answer as compared to 45 percent of those with average scores, and 26 percent with low scores.

*Post test interviews indicated that "spoiling" was an unfortunate word choice compared to others such as "changing" inasmuch as some respondents understood it to mean bacteriological deterioration.

Army experience: The median period of experience in the mess was nine years, two years less than the median length of time in service. Only eight percent of the respondents had less than one year's experience in cooking for the Army. "Old timers," with greater lengths of service in both the Army and the mess hall, tended to have higher job titles and to have asked for mess duty rather than being assigned (Table 2).

Most of the respondents (87 percent) had attended one or more Army mess training courses. Basic cooking was the course most frequently taken (76 percent), followed by mess management (40 percent), bread baking (19 percent), food service supervisor (12 percent), and "other" (meat cutters, dietician, pastry, etc. -- nine percent). The respondents also checked one or more of four training courses given by the Army that they would like to take. Food service supervisor was the most sought-after training (57 percent); approximately half of this proportion wanted mess management and bread-baking courses, and a small number indicated basic cooking. Table 3 shows the number of courses taken and those wanted, by job title. With a few exceptions, respondents in the more responsible jobs have had greater training and feel they now require fewer courses. Few mess stewards have had a course in food supervision, but all wanted it -- even cook's helpers. Generally, the amount of training in various positions is commensurate with the duty performed, and the higher job levels want training in areas into which they expect promotion. . Except for the food service supervisor, personnel assigned to the mess tend to have less training (result of less total service) and to want more training than those who volunteered for the job, (Table 3).

Table 3

Army training courses taken or desired,
by job titles and nature of assignment

	Status T(Taken) W(Want to)	All Respondents (N=222)	Mess Steward (N=62)	1st Cook (N=98)	Cook (N=38)	Cook's Helper (N=11)	Volun- teered (N=164)	Assigned (N=58)
		N	%	%	%	%	%	%
Basic Cooking	T	76	86	76	73	54	79	69
	W	8	3	8	16	9	8	9
Mess Management	T	40	72	36	9	9	45	24
	W	29	16	33	36	37	26	38
Food Service Supervisor	T	12	18	9	8	--	11	15
	W	58	82	52	34	73	62	45
Bread Baking	T	19	13	27	10	9	22	12
	W	24	17	26	29	18	22	28
None Taken		13	4	11	26	27	12	15

Civilian experience: A fifth of the respondents stated they had never cooked before entering the Army, while the others indicated some experience preparing home meals and/or cooking in quantity for a restaurant. A greater number of respondents who asked for mess jobs had some cooking experience, either in the home (69 percent as contrasted to 43 percent) or restaurant (54 percent to 33 percent), than did those who had not volunteered for this duty.

Of the 67 percent of respondents cooking at home, approximately 20 percent indicated each of the following frequencies: "almost every day," "several times a week," "about once a week," and six percent cooked "once a month."

Of 106 respondents who had worked in restaurants, half had three years of such experience, and only a small number had cooked for less than one year (N = 14) or more than 15 years (N = 2). Previous restaurant employment (but not length of such employment) appeared to be related to the respondents' job and title in the mess; 58 percent of the mess stewards, 51 percent of the first cooks and 29 percent of other cooks had such experience.

"On-the-job training" and "family or friends" were each checked as sources of learning by a quarter of those who had cooked in civilian life, while "formal training" and "cook books" each accounted for an eighth. Except for "family or friends" and "just picked it up," personnel assigned to the mess had less training than those who asked for the job.

No clear relationships were found between respondent's job knowledge score and his previous cooking at home or in a restaurant, length of duty in the service or in the mess, source of civilian training, or Army training courses taken or wanted. The lack of relationship between job knowledge, experience, and interest was quite unexpected. (See Tables 4, 5, and 8).

Job Interest

In addition to knowledge and experience, performance may be influenced by the interest that mess personnel take in their duties. Indices of pleasure and interest in cooking used in this study are: whether the job in the mess was solicited or assigned, and reasons for wanting the job; whether a transfer to other duties is desired, as well as the reasons; the relative liking for typical mess hall tasks; outside reading about cooking; "off-the-job" cooking; and the inclusion of cooking in future vocational plans.

Placement or request for mess duty: Seventy-four percent of respondents were sufficiently interested in cooking to ask for mess duty. "Cooking is one of the things I know most about," was the reason for requesting mess assignment checked by a majority of 56 percent of the volunteers. The open-end "other" category (wanted to learn a trade, cook, interest in cooking) accounted for 20 percent of the responses. and 10 percent checked "cooks are pretty important...." Responses to the categories "...best job compared to lugging a gun..." and "...plenty of food..." were negligible.

Table 4

Relationship of experience to job knowledge level

Restaurant Experience		6-15 yrs. N = 16		4-6 yrs. N = 18		2-4 yrs. N = 38		1-2 yrs. N = 20		2-12 mos. N = 14	
		%		%		%		%		%	
Job Knowledge Score Level	High	19*		23		21		25		29*	
	Aver.	56**		44		45		40		42*	
	Low	25*		33		34		35		29*	
	Total%	100		100		100		100		100	
Mess Experience	Over 15 yrs. N = 26	10-15-yrs. N = 68		6-10 yrs. N = 41		4-6 yrs. N = 29		2-4 yrs. N = 20		1-2 yrs. N = 18	
		%		%		%		%		%	
	High	27	25	29	15	20	17	11*			
	Aver.	35	46	49	64	45	44	22*			
Total%	Low	38	29	22	21	35	39	67*			
		100	100	100	100	100	100	100			

*Categories combined to increase the N.

Table 5

Relationship of training of job knowledge level

			<u>Job knowledge score level</u>			Total
N			High	Average	Low	
			%	%	%	%
Cooked before service	Yes	175	30	38	32	100
	No	47	21	46	33	100
Had one or more Army training courses	Yes	193	21	41	38	100
	No	29	23	45	32	100
Took basic cooking course	Yes	169	24	45	31	100
	No	53	21	43	36	100
Took mess management course	Yes	88	25	41	34	100
	No	134	22	48	31	100

Table 2 presents the distribution by job title of those who asked for or were assigned to mess duty. Those having higher job titles asked for mess duty, and achieve a greater proportion of high and average job knowledge scores.

Transfer from mess duty: Eighteen percent of the respondents wanted to transfer to other duties. Some of these had originally asked for the job, but most had not (Table 6). Similar results from another Army study of cooks' job satisfaction are also presented (2). The findings of these studies are consistent and indicate assignee's attitudes have not changed much since World War II.

Only half (N = 19) of the respondents desiring transfer indicated their reasons. Also interesting is the fact that half of those not wanting a transfer availed themselves of this opportunity to express some dissatisfaction (not enough for transfer) with their job by answering this question.

Table 6

Transfers wanted and job satisfactions by
respondents asking for, and assigned to, mess jobs

How job obtained	Want Transfer		Cook's and Baker's Job Satisfaction*	
	No %	Yes %	Satisfied %	Dissatisfied %
Ask	87	13	85	15
Assigned	67	33	53	47

* Data from Stouffer, S., E. A. Suchman, L. C. DeVinney, S. A. Star, and R. M. Williams. Studies in social psychology in World War II. Princeton, New Jersey, Princeton University Press, vol. 1, -. 291, 1949.

Among those desiring a transfer, slow promotion appeared to be a primary source of dissatisfaction: the categories, "long working hours," "tired of cooking," and "feel like a change," were rarely used. Analysis of "write-in" responses indicated that very few specific explanations for wanting a transfer were offered. Avoidance of this item, unique in this study, suggests the respondents were unable to verbalize their feelings. Job title is inversely related to wanting a transfer (see Table 2).

Requesting assignment to mess duty was unrelated to job knowledge (Table 7). However, a tendency for respondents with low job knowledge to want transfer to other than mess duties is evident.

<p style="text-align: center;">Table 7</p> <p style="text-align: center;">Relationship of job knowledge level to nature of assignment and desire for transfer from mess duty.</p>				
Cooking Knowledge	Placement		Want Transfer	
	Volunteered (N = 164)	Assigned (N = 58)	Yes (N=40)	No (N = 181)
High (3)	33%	31%	14%	25%
Average (2)	43	48	43	45
Low (1)	24	21	43	30
Total %	100	100	100	100

Preference for typical tasks in the mess: Respondents showed their liking for six different mess tasks by ranking them from one (like to do best) to six (like to do least). Best liked was "cooking," rated first by 49 percent of the 213 respondents correctly completing this question, and liked least was "administration," ranked first by 17 percent.

Liking for the various tasks by different occupational levels is shown in Figure 2. Cooking is relatively preferred by all personnel. Mess stewards tend to either like administration best, or least. Cleaning is liked least by the lower grades, whose job it is, and by the mess stewards responsible for sanitation. It is interesting to note that a small proportion of first cooks, not to mention others, prefer various duties including cleaning, to cooking.

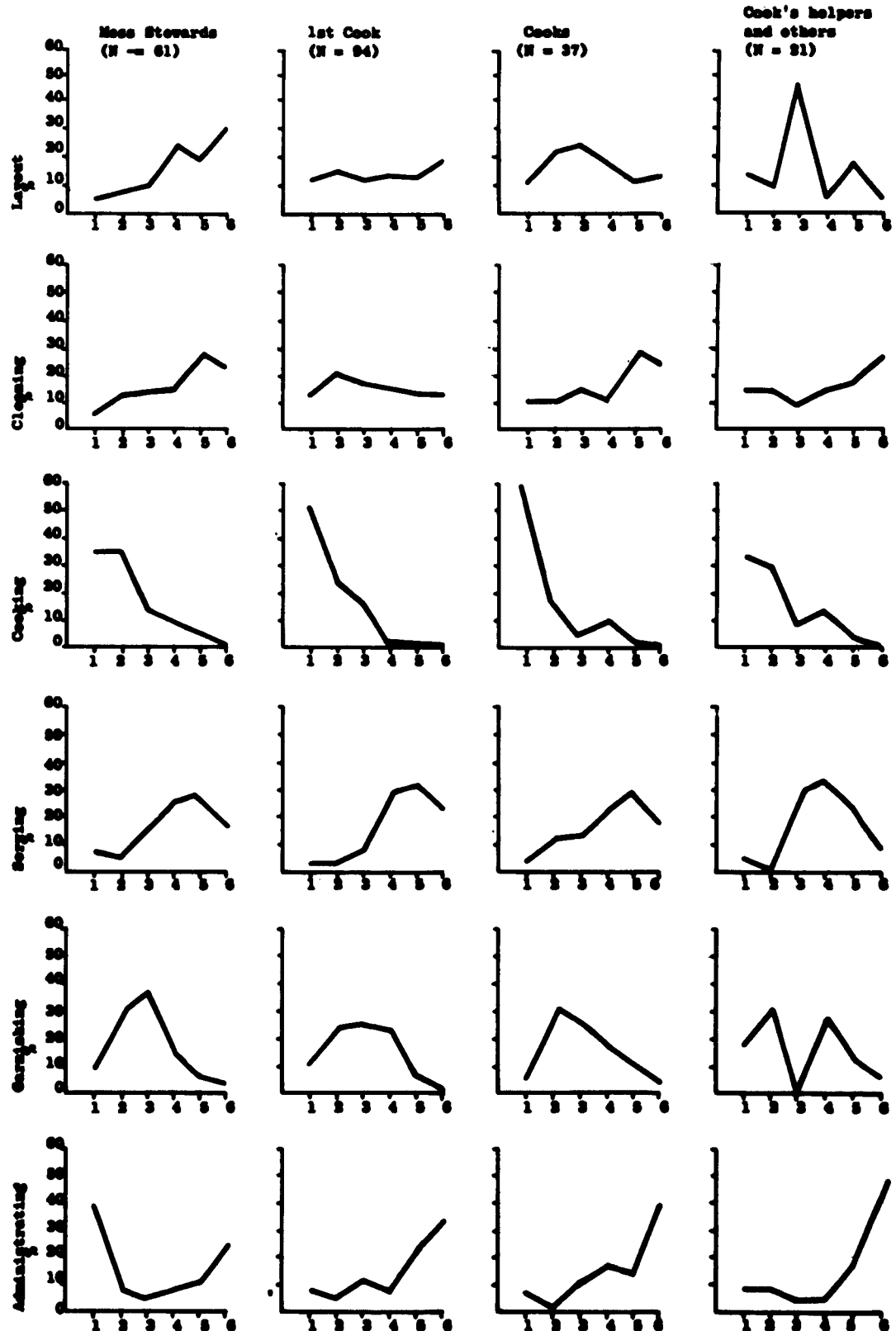
Except for cooking, which was ranked higher by proportionately more respondents who asked for mess duty, asking for, vs. being assigned to mess duty showed no clear relationship to preference for different mess tasks.

Table 8 presents the relationship between relative liking for different tasks in the mess and job knowledge. Cooking appears to be one task that is related to job knowledge level. Individuals with above average scores like cooking more than those having low level scores.

Other indices of cooking interest: Upon returning to civilian life, 40 percent of the respondents wanted a job in which they cooked, 20 percent desired a completely unrelated occupation, 18 percent wanted a food related (butcher, restaurant manager, food inspector, etc.) job, and the remaining 22 percent were evenly distributed in categories such as undecided and no answer. A majority of first cooks planned to cook as civilians, mess stewards are divided between cooking and administration, and the majority of cook's helpers planned to enter areas unrelated to food.

Figure 3

Relative liking for different kitchen tasks by job title



* Assignment of "1" to a task indicated it was ranked "liked best," and "6" it was ranked "liked least."

Table 8

Job knowledge level and mean rank of liking for different mess duties

Duty	Job Knowledge	Respondents	Ranked degree of liking						
			{ "1" = like best, "6" = like least }						
			1	2	3	4	5	6	Blank
Laying out foods		N	24	31	37	37	34	45	14
	High	%	8	23	24	33	24	22	21
	Average	%	46	35	46	51	47	42	43
	Low	%	46	42	30	16	29	36	36
Clean up		N	22	37	35	33	46	42	7
	High	%	19	24	31	15	24	24	14
	Average	%	36	41	40	61	46	43	43
	Low	%	45	35	29	24	30	33	43
Cooking		N	105	60	31	15	6	1	4
	High	%	25	27	13	26	-	-	-
	Average	%	50	38	48	27	33	100	50
	Low	%	25	35	39	47	67	-	50
Serving		N	9	11	28	59	66	41	8
	High	%	34	19	32	29	23	24	12
	Average	%	44	45	25	22	48	26	28
	Low	%	22	36	43	39	29	20	20
Administration		N	36	16	22	21	41	76	9
	High	%	29	20	18	26	22	23	-
	Average	%	37	40	59	48	46	41	67
	Low	%	34	40	23	24	22	36	33
Garnishing and Decorating		N	21	68	61	49	17	4	8
	High	%	19	22	21	24	25	-	26
	Average	%	29	58	48	35	18	50	50
	Low	%	43	19	31	41	47	50	23

Table 9
Outside reading and job knowledge

Cooking Knowledge	Almost Daily N = 46	Several Times a Week N = 71	About Once a Week N = 50	About Once a Month N = 30	Almost Never N = 24
	%	%	%	%	%
High (3)	19	21	24	37	17
Average (2)	35	46	50	43	50
Low (1)	46	32	26	20	33
Total	100	99	100	100	100

A majority of mess personnel reported cooking or reading about cooking once a month or more often during their off-the-job spare time. Proportionately greater numbers of low echelon personnel, and personnel who were assigned (vs. volunteered), reported almost never engaging in these spare time activities.

Enjoyment of cooking, indicated by the amount of cooking done off-the-job on the respondents' own time, was not related to job knowledge scores. The greater a cook's job knowledge the less he read about cooking (except for the Army cookbook) on the outside (see Table 9).

Opinions of Mess Personnel Towards Various Aspects of the Mess.

Opinions and attitudes, inasmuch as they tend to predispose individuals to act in specific ways, are closely related to job interest. However, the questionnaire items included in this section differ from those in the preceding section which might, for the most part, be assumed to have "face validity"; i.e., the response to the item has an apparent relationship to performance. For example, the respondents were asked whether they wanted a transfer to other duties, and those that did were reasonably assumed to be dissatisfied with their mess job. In this section the items are concerned with beliefs, attitudes, and opinions whose relationship to job satisfaction and performance is even less direct. This section is largely concerned with the opinions of mess personnel towards their mess, their preparation of foods, and their co-workers.

Opinions about the mess: A common belief is that the Army, especially in the past, stressed sanitation perhaps to the detriment of food preparation. Asked to rank four statements according to what "...is the most important in a mess hall...", the greatest proportion (45 percent) ranked "...extremely sanitary conditions" first in importance. "To serve nutritious meals" was ranked first by 37 percent; however, post test interviews demonstrated that some respondents interpreted this category as being synonymous to "...serve tasty meals," a category ranked first by only 14 percent. The three categories above were each ranked least important by about a tenth of the respondents. Serving meals in pleasant surroundings was considered least important. Even though appearance was not considered very important in a mess hall, a majority of messes indicated efforts to improve the hall's appearance (discussed later in mess practices).

Seven statements ranked as to which would "...improve this mess hall most..." are presented in Table 10, which gives the distribution of responses in the two first, and the two last ranks. "More formal training for cooks" was ranked most important (ranks 1 and 2 combined) for the mess by the greatest proportion (48 percent) of respondents; however, mess stewards are more in agreement on the primary importance of training for cooks than the cooks themselves by whom more on-the-job training was not ranked high. Greater numbers of cooks and K.P.'s is given primary importance by the respondents who cook and clean. No single area for improvement was predominant, and the importance given to any single area differed depending on the duty of the respondent.

Opinions concerning food quality: Half of the responses to the question, "...how often is a dish not quite right in this mess?" were in the "rarely or never" category. Only five percent thought dishes were "not quite right" daily, and 43 percent indicated frequencies ranging from several times a week to once a month. Personnel with high job titles, responsible for mess operations, were as critical of the mess's output as those at lower levels. Criticism by personnel of their output does not necessarily indicate their food is of a poorer quality; it may reflect their greater discrimination or aspiration.

Asked the reason for a dish not being "quite right" in their mess, 42 percent of the respondents through cook's lack knowledge and skill, 29 percent indicated the cooks were disinterested, and 19 percent blamed poor mess supervision. One relationship was found between job title and a dish not being right; 31 percent of mess stewards compared to 16 percent of first cooks and 12 percent of the cooks blamed "poor mess supervision." Nature of assignment and job knowledge appeared unrelated to the reasons given for a dish not turning out right.

"The men eating in the mess" were considered "...the best judge(s) of how well a food is prepared" by most of the personnel -- 60 percent ranked this response the first of four. The supervisor and the respondent himself were each ranked first as a judge of food quality by a fifth of the respondents, and "a fellow cook" was rarely considered a good judge. Assigned personnel tended to lack confidence in themselves, very few of these personnel ranked themselves best as judges of food quality. Personnel with the job title of cook were either very confident, or not at all confident of themselves -- they ranked themselves best or poorest.

Table 10

Importance of various factors for improving the mess

Factors	All respondents		Mess Stewards+		First Cooks+		Cooks+		Cook's Helpers+	
	Most*	Least*	Most*	Least*	Most*	Least*	Most*	Least*	Most*	Least*
	%	%	%	%	%	%	%	%	%	%
More training for cooks	48	18	61	6	35	18	36	29	45	18
More cooks	44	16	33	19	46	11	42	13	27	8
More K. P.'s	22	38	13	43	18	29	26	26	45	27
More supervision	17	37	19	35	16	33	10	20	9	36
More on-the-job-training	16	23	19	14	12	24	13	21	-	18
More or better equipment	33	27	22	35	30	19	42	16	18	36
More cooperation from personnel	20	32	18	29	20	30	8	24	36	36

+ The Ns differed for various factors; greatest number of blanks on any factor was:

All respondents - 30, mess stewards - 5, first cooks - 15, cooks - 8, helpers - 1.

* "Most important" determined by combining frequencies of ranks "1" or "2": least important

similarly determined by combining rankings of "6 and 7."

A great proportion of respondents with high job knowledge scores ranked "the men eating in this mess" best judges of food quality.

In describing communication with the soldier consumer, 16 percent of mess personnel stated that the diners express no opinion, 39 percent felt that the diners "...don't say anything when it (a food) is good, but complain whenever the food is below par," and four percent state the diners "... often complain about the food." It is hypothesized that these attitudes, held by some mess personnel, do not motivate cooks to greater effort in preparing foods. Thirty-four percent of the personnel stated that diners "always, or sometimes, say they like the food."

Opinions concerning co-workers: Respondents ranked four statements as to importance for a mess supervisor. Seventy percent considered "knowledge of cooking" most important and "good at paper work" least important. Response to "make decisions and back them up" was evenly distributed over the four ranks. With respect to job title, cooks differed from mess stewards and first cooks on the statement "fairness to men," 24 percent of cooks ranked it most important in contrast to seven percent for the other two groups.

Table 11 presents the respondents' opinions as to the most desirable single characteristic of a fellow cook. "Cooperative and dependable" was the most frequent response, "knows his job" was less frequently endorsed, while "friendly personality" was rarely endorsed. Differences among job titles may be noted; for example, "knows his job" was least important to first cooks.

Table 11

Desired traits in a cook

Respondents	N	Co-Worker Traits					Total %
		Knows his job -	Friendly %	Hard worker %	Clean %	Cooperative and dependable %	
All	222	26	3	4	10	45	88*
Mess stewards	62	34	-	5	11	40	90
First cooks	98	17	1	5	10	55	88
Cooks	38	39	8	3	8	26	84
Cook's helpers	11	18	18	-	9	45	90
*Blank: 11%							

Mess Practices

It is possible that the quality of an Army mess is distinguishable by certain of the practices of its personnel. For example, daily meetings of all personnel and the personnel's familiarity with cooking all types of foods, are considered essential for proper mess operation. Common practices in several areas were investigated to determine the variability that might be expected in Army messes.

Mess administration: Daily meetings of all personnel are considered important for integrating the work, discussing personnel problems, etc. Table 12 shows the frequency of such meetings during the last six months reported by all respondents as well as by different job titles. Over half of the higher job titles reported daily meetings.

Respondents were asked to rank the four topics most often discussed at these meetings, they stated that "cleanliness and sanitation" was discussed most (83 percent) followed by "how to prepare foods" (70 percent), "quality of food" (25 percent), and finally "administration -- assignments, personnel problems, etc." (13 percent).*

Table 12
Frequency of meetings of all mess personnel

Frequency	All	Mess Steward (N = 62)	1st Cook (N = 98)	Cook (N = 38)	Cook's helper (N = 11)
	%	%	%	%	%
Several times a day	4	6	2	3	-
Almost every day	59	69	68	39	45
Several times a week	12	10	10	13	9
About once a week	12	8	12	13	18
About once a month	7	3	5	13	27
A few times a year	4	2	-	16	-
Total	98	98	97	97	99

Mess personnel (within the qualifications of their job title) are expected to be able to cook all foods equally well. Specialization, such as that found in civilian operation, (salad chefs, sauce chefs, etc.) is not desirable from the point of view that optimum utilization of personnel may demand flexibility of assignments in food preparation.

*Percentages were derived by combining the first (most discussed) and second of the four ranks.

Table 13 presents the proportion of respondents who indicated that they prepare a given type of food during an average week. The proportions of all respondents that prepared a given dish ranges from 33 percent for dessert to 67 percent for main dishes. A fifth of the respondents cooked none of the dishes in the fairly comprehensive list; however, the distribution by job title shows this group was largely composed of mess stewards whose primary function is administration. Nearly all first cooks prepared main dishes, and considerable proportions of them reported the preparation of vegetables and salads. Lower job knowledge levels may be associated with preparation of desserts and salads.

Table 13								
Proportion of respondents who cook one or more given types of food								
Food	% Respondents in each group that reported cooking food*							
	All Respondents* N = 222	Mess Steward N = 62	First Cook N = 98	Cook N=38	Cook's Helper N = 11	Job Knowledge		
	%	%	%	%	%	High N=51	Aver. N=99	Low N=72
Vegetables	39	8	43	68	72	22	40	48
Salad	40	21	40	38	91	24	41	48
Main dishes	67	24	98	71	36	58	77	58
Soups	40	24	54	39	36	35	44	39
Desserts	33	6	42	39	81	24	36	35
Eggs	34	8	49	39	36	31	38	30
None above	20	60	2	-	9	27	14	22

* Respondents permitted to check more than one food.

Ninety-seven percent of the respondents indicated that, in addition to the conventional duties required of the mess, one or more extra things are done to please the men eating in their hall. These "extras" were as follows: improve appearance of mess hall (such as table cloths, decorations, etc.), 65 percent; occasional preparation of special foods not on the master menu, 43 percent; beverages and/or snacks available (to men) almost anytime during the day, 40 percent; new recipes for unpopular foods, 22 percent; salad table for men to make their own salads, seven percent. Personnel who asked for mess duty tended to indicate proportionally more "extras" than those assigned; and slight differences in reporting extras were found by job title. For example, proportionately fewer mess stewards than other personnel reported serving between meal snacks and/or beverages.

Practices of individual personnel: The extent of communication between the men eating in the hall and the mess staff was investigated. Ninety-five percent of the respondents indicated they entered "... the eating area and talk to men about the food," at least once a week and a majority (68 percent) do it daily. No differences were found according to job title, but assigned personnel tend to talk to the men about food less often.

Mess personnel were asked about certain practices while cooking, such as their use of Army recipe book TM 10-412 during the past six months. The considerable usage given this book, especially among higher occupational levels, is shown in Table 14. An interesting sidelight is that personnel with considerable knowledge of cooking, demonstrated by

job knowledge scores, report using the book as often, if not more, than those with less knowledge.

Asked what they did when they encounter problems in preparation of a food, 61 percent of the respondents said they consulted a cookbook, 26 percent sought the answer from the supervisor, four percent asked another cook, and less than one percent did the best they could on their own. Neither nature of assignment nor job title differences were found, mess stewards tend to turn to their supervisors as often as the first cooks turn to mess stewards.

Table 14								
Use of the Army recipe book TM 10-412 by job title and job knowledge								
Respondents	N	Every Meal	Once a day	Several times a week	Once a week	Once a month	Almost never	Total
	%	%	%	%	%	%	%	%
<u>All</u>	222	74	10	6	3	1	5	99
Job title								
Mess stewards	62	80	11	6				97
First cooks	98	83	11	3	1		2	100
Cooks	38	60	11	11	5	3	7	97
Job knowledge level								
Low	72	69	7	6	6	3	8	99
Average	98	75	15	4	2	1	2	99
High	51	78	6	10			6	100

Summary and Discussion

The Army feeding program draws on the resources of numerous personnel in various occupational specialties to provide mess halls throughout the Continental United States with quality ingredients for the soldier's meals. A good proportion of soldiers reject one or more of the dishes at meals because the foods are poorly prepared.

Inasmuch as the quality of food preparation is the responsibility of the mess, a questionnaire study was conducted with mess personnel to determine factors that might affect preparation. The human factors explored in this pilot study were broadly classified in four categories: (1) training and experience; (2) job interest; (3) opinions of mess personnel: and (4) mess practices.

Training and experience: Information was obtained on education and work history, in civilian and military settings, and job knowledge. The relationships among these various factors were explored. Mess personnel differed considerably in their job knowledge as measured by total scores on objective test items. Score level on the job knowledge items was directly related to another type of job knowledge question (i.e., holding quality of food on a steam table) as well as to job title; but no clear relationship was found between job knowledge score levels and experience or training. The restricted nature of the test items, all of which concerned cooking times and/or temperatures, may partially account for the lack of relationship to background in cooking. For example, conceivably experienced cooks are not "clock watchers," judging "doneness" of a food by other criteria, such as color, texture

when pierced by a fork, etc., and therefore find it difficult to correctly answer questions on cooking time. Possibly other job knowledge items such as questions on weights and measures used in cooking, and questions on the specific meaning of cooking terminology (baste, whip, saute, dice, etc.) would be more indicative of cooking experience.

Job knowledge may be related to general intelligence or a factor such as interest in cooking. The relation between interest and job knowledge is considered in the section on morale.

The majority of Army mess personnel tested had civilian cooking experience, either at home or in a restaurant, and also several years' cooking in the mess. In civilian life, training was "on-the-job" by "family and friends" while in the Army one or more formal courses had been taken by most respondents. Respondents with higher job titles tended to have requested mess duty, and these two indices, title and voluntary assignment, were related to greater cooking experience and training.

Job interest: This section deals with preference for different mess tasks, whether or not mess duty was requested and various indices of job interest, such as off-the-job cooking, reading about cooking, and future employment plans.

Generally speaking, mess personnel expressed considerable interest in their job. Approximately three quarters of the respondents indicated that: assignment to mess duty was requested; the actual process of cooking was liked best or second best of six mess tasks (administration, cleaning, etc.); and off-duty and on their own time they cooked once a month or more, and read about cooking once a week or more.

Dissatisfaction was expressed by about a fifth of the personnel who wanted a transfer to other duties, and an equal proportion planned to enter a completely unrelated occupation on returning to civilian life. Desire to transfer was greater among those assigned to mess duties than among volunteers.

Respondents who volunteered and those with higher job titles generally had greater interest in their work as determined by the foregoing indices. Job knowledge level scores generally showed no clear-cut relation to job interest, with the possible exceptions of wanting to transfer to other duty and amount of outside reading (inverse relationship).

Opinions of mess personnel and mess practices: The questionnaire items in these two sections dealt with what the various mess personnel actually did and what they think ought be done to improve the mess. It must be recognized that there may be biases in the responses to these questions and to those on how often the staff meets to discuss operations of the mess.

A majority of the respondents indicated that they had daily meetings of the mess personnel at which the most discussed topic was sanitation, followed in decreasing order by food preparation, quality of food, and administration problems. Nearly all mess halls were reported as having extras for the diners, ranging from improvement of the physical appearance to presenting diners with salad tables.

A majority of the mess personnel talked frequently to the diners about the foods served. The Army cookbook, TM 10-412 was frequently used, especially by those with higher job titles and job knowledge scores.

When they encountered a problem in cooking, a majority of cooks said they referred to a cookbook rather than to other personnel.

During a typical week, a greater proportion of all personnel in a mess were engaged in preparing main dishes than other types of foods such as desserts. Job title was related to the type of food prepared. Two-way distributions of mess practices with nature of assignment or job knowledge showed few significant relationships.

The personnel believed that most important in the day-to-day operation of the mess was sanitation, less important was preparation of tasty foods, and least important were the physical surroundings. Most important for improving the mess were more formal training for cooks, more cooks, and more cooking equipment. Only half of the respondents stated that the preparation of a food in their mess was occasionally "not right." A primary reason given for a food's not being "right" was the cooks' lack of knowledge and skill.

The mess personnel believed the men eating in the hall to be the best judges of food. A considerable proportion of the respondents felt that the men refrained from comment, or made only unfavorable comments about the food.

With regard to co-workers in the mess, "knowledge of cooking" was considered most important for a supervisor, and being "cooperative and dependable" as most important for a fellow cook.

In conclusion, this study has shown the feasibility of using a relatively complex self administered questionnaire to indagate the attitudes and capabilities of mess personnel. Of greater importance is the data obtained by the questionnaire, which while exploratory in nature, has demonstrated that mess personnel differ considerably in their practices. A certain proportion of the questionnaire items would appear to have face validity, for example, job knowledge and satisfaction with the job should be related directly to the quality of output, food preparation. The relation of other behavioral indices on which mess personnel differ to quality of output is not readily defined. Inasmuch as differences in consumption and quality have been found between messes, it is recommended that further research be conducted to determine the correspondence between mess quality and some of the personnel factors described in this pilot study.

Bibliography

1. Kamen, J. M. Consumption and reasons for non-consumption in the Army. Jour. Am. Dietetic Assn. (In press).
2. Stouffer, S., E. A. Suchman, L. C. DeVinney, S. A. Star, and R. M. Williams. Studies in social psychology in World War II. Princeton, N. J., Princeton University Press, vol. 1, 1949.
3. Recipes, T. M. 10-412 AFM 146-3. U. S. Government Printing Office, p. 495, 1950.

Appendix A

Mess Personnel Questionnaire

Improvement of feeding systems is a major goal of the Quartermaster Corps.

Because mess personnel probably know more about food problems than almost anyone else in the Army, we feel that you can give us valuable information.

This questionnaire will be used for research purposes only. However, with the information we get from you and others responsible for troop feeding, we hope that we can eventually increase soldiers' acceptance of Army food as well as boost the morale and satisfaction of mess personnel.

No one at this Fort will ever know what you write down. Only research workers will see your answers. Your responses cannot and will not be used against you or your mess hall in any way.

Answer every item in this booklet. If you have any questions, ask a member of the test team.

Feel free to write on the blank sides of the pages any comments you may have about the items in this questionnaire or any ideas on improving Army feeding.

1. What state did you live in most of the time until you were 16 years old?

(Write in name of State)

2. How often did you cook at home before you entered the Army?

- a. Almost every day
- b. Several times a week
- c. About once a week
- d. About once a month
- e. Almost never

3. Before you entered the Army, did you ever cook in a restaurant or cafeteria?

 a. Yes
(How long?)

 b. No

4. How did you learn to cook before entering the Army?
(Check one or more)

- a. I never did any cooking before coming into service
- b. Formal training
- c. Family or friends
- d. On-the-job training
- e. Just picked it up
- f. Cook books

5. What is your assigned duty? (Check one)

- a. Mess steward or mess sergeant
- b. 1st Cook
- c. Cook
- d. Baker
- e. Cook's helper
- f. Other (Write in)

6. How long have you been on active duty?
 Years Months

7. How long have you worked in mess halls?
 Years Months

8. Did you ask for assignment to mess duties?

 a. No

 b. Yes

9. If you asked for assignment to mess duties, what was the main reason? (Check one)

- a. It's one of the best jobs compared to lugging a gun around
- b. There is always plenty of food for the cooks
- c. Cooks are pretty important at any post and get to know what's going on
- d. Cooking is one of the things I know most about
- e. Other (Write in)

10. Would you like to be transferred to other duties from mess duties?

_____a. No

_____b. Yes

11. If you want to be transferred to other duties, what is the main reason? (Check one)

_____a. Promotion and advancement of mess personnel is slow

_____b. Just feel like a change

_____c. The working hours are too long

_____d. I am tired of cooking

_____e. Would rather work out-of-doors

_____f. Other (Write in) _____

12. Check the mess training courses you have taken in the Army.

_____a. None

_____b. Basic cooking

_____c. Mess management

_____d. Food service supervision

_____e. Bread bakers

_____f. Other (Write in) _____

_____g. _____

13. Check the mess training courses given by the Army that you would like to take.

_____a. Basic cooking

_____b. Mess management

_____c. Food service supervisor

_____d. Bread bakers

14. Place a "1" next to what you think is most important in a mess hall. Place a "2" next to what you think is the second most important, and so on with "3" and "4" until you have ranked all four duties from most important, "1" to least important, "4".

_____a. To serve nutritious meals

_____b. To serve foods prepared under extremely sanitary conditions

_____c. To serve tasty meals

_____d. To serve meals in pleasant surroundings

15. Place a "1" next to the characteristic that you think is most important for a mess supervisor to have. Place a "2" next to the second most important characteristic, and so on until you have ranked all four characteristics.

_____a. Fairness to men

_____b. Good at paperwork

_____c. Knowledge of cooking

_____d. Make decisions and back them up

16. Place a "1" next to the person who you think is the best judge of how well a food is prepared. Place a "2" next to the person who you think is the second best judge, and so on until you have rank-ordered all four people.

_____a. Your supervisor

_____b. A fellow cook

_____c. The man eating in this mess

_____d. Yourself

17. Place a "1" next to the task you like to do best. Place a "2" next to the task you like second best, and so on until you have placed a "6" next to the task you like the least.

_____a. Laying out ingredients and getting foods ready for cooking

_____b. Cleaning up

_____c. Cooking

_____d. Serving men on line

_____e. Garnishing and decorating

_____f. Administration

18. During the past 6 months, how often have meetings been called for all the personnel of your mess?

_____a. Several times a day

_____b. Almost every day

_____c. Several times a week

_____d. About once a week

_____e. About once a month

_____f. A few times a year

19. Place a "1" next to the topic that is discussed most during meetings of the personnel in your mess. Place a "2" next to the topic that is discussed second most, and so on until you have rank-ordered all four topics.

_____a. How to prepare food

_____b. Cleanliness and sanitation

_____c. Administration - assignments, personnel problems, etc.

_____d. Quality of food

20. How often do you go into the eating area and talk to the men about the food? .

- _____a. Almost every day
- _____b. Several times a week
- _____c. About once a week
- _____d. About once a month
- _____e. Rarely or never

21. During an average week, what courses do you cook or prepare? (Check one or more)

- _____a. Vegetables
- _____b. Salads
- _____c. Main dishes
- _____d. Soups
- _____e. Desserts
- _____f. Eggs
- _____g. None of the above

22. It is known that a dish served in a restaurant may be very good one day and only average, not quite right, the next. How often is a dish "not quite right" in this mess? (Check one)

- _____a. Several times a day
- _____b. Once a day
- _____c. Several times a week
- _____d. Once a week
- _____e. Once a month
- _____f. Rarely or never

23. When a dish doesn't turn out "quite right", it is generally because of: (Check one)

- _____a. Poor mess supervision
- _____b. Cooks lack knowledge and skill
- _____c. Cooks are not interested

24. What do you think of the Army TM-10-405?

- ____a. Extremely good
- ____b. Very good
- ____c. Quite good
- ____d. Average
- ____e. Quite poor
- ____f. Extremely poor

25. In the last 6 months how often have you used a recipe manual such as TM-10-412?

- ____a. Almost every meal
- ____b. About once a day
- ____c. Several times a week
- ____d. About once a week
- ____e. About once a month
- ____f. Almost never

26. In the last 6 months how often have you read about cooking on your own time?

- ____a. Almost every day
- ____b. Several times a week
- ____c. About once a week
- ____d. About once a month
- ____e. Almost never

27. When you have a problem in preparing a food, do you (check one)

- ____a. Do the best I can on my own
- ____b. Consult a cook book
- ____c. Ask the supervisor
- ____d. Ask another cook

28. How often do you cook for yourself outside of this mess, on your own time?

- ____a. Almost every day
- ____b. Several times a week
- ____c. About once a week
- ____d. About once a month
- ____e. Almost never
- ____f. No opportunity to cook for myself on my own time

29. Check the one most important characteristic of a cook you would like to work with.

- ____a. Friendly personality
- ____b. Hard worker
- ____c. Clean
- ____d. Cooperative and dependable
- ____e. Knows his job

30. What "extra" things are done for the men eating in this mess hall? (Check one or more)

- _____a. Beverages and/or snacks are available almost any time during the day
- _____b. Improved appearance of mess hall (such as tablecloths, decorations)
- _____c. Salad table for men to make their own salads
- _____d. Special foods (not on the Master Menu) are occasionally prepared for the men
- _____e. New recipes for unpopular foods
- _____f. None
- _____g. Others (Write in) _____

31. Which of the following is the most typical of the men eating in this mess hall? (Check one)

- _____a. They often complain about the food
- _____b. They rarely express any opinion about the food
- _____c. They don't say anything when it's good but complain whenever the food is below par
- _____d. They always say they like the food
- _____e. They sometimes say they like the food
- _____f. Other (Write in) _____

32. Place a "1" next to what you think would improve this mess hall most. Place a "2" next to what you think would improve this mess hall the second most, and so on until you have all six alternatives ranked in order of their importance for improvement.

- _____a. More formal training courses for the cooks
- _____b. More cooks
- _____c. More K. P.'s
- _____d. Greater amount of supervision
- _____e. More on-the-job training
- _____f. More or better equipment
- _____g. More cooperation from mess personnel

33. Check the one food in the following list that may be kept longest on a steam table without spoiling its quality:

- _____a. Fried liver
- _____b. Chicken a la King
- _____c. Scrambled eggs
- _____d. Pancakes

34. Briefly write in answers to the following questions:

List the names of any magazines, newspapers or cook books you regularly look at for cooking suggestions:

If you return to civilian life, what kind of a job would you like to have?

35. About how much do the men eating in this mess hall like each of the following foods?
For each food, circle one answer.

Liver	LIKE EXTREMELY	LIKE VERY MUCH	LIKE MODER- ATELY	LIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	DISLIKE SLIGHTLY	DISLIKE MODER- ATELY	DISLIKE VERY MUCH	DISLIKE EXTREMELY
Corried beef	LIKE EXTREMELY	LIKE VERY MUCH	LIKE MODER- ATELY	LIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	DISLIKE SLIGHTLY	DISLIKE MODER- ATELY	DISLIKE VERY MUCH	DISLIKE EXTREMELY
Vegetable soup	LIKE EXTREMELY	LIKE VERY MUCH	LIKE MODER- ATELY	LIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	DISLIKE SLIGHTLY	DISLIKE MODER- ATELY	DISLIKE VERY MUCH	DISLIKE EXTREMELY
Pancakes	LIKE EXTREMELY	LIKE VERY MUCH	LIKE MODER- ATELY	LIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	DISLIKE SLIGHTLY	DISLIKE MODER- ATELY	DISLIKE VERY MUCH	DISLIKE EXTREMELY
Scrambled eggs	LIKE EXTREMELY	LIKE VERY MUCH	LIKE MODER- ATELY	LIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	DISLIKE SLIGHTLY	DISLIKE MODER- ATELY	DISLIKE VERY MUCH	DISLIKE EXTREMELY
Broccoli	LIKE EXTREMELY	LIKE VERY MUCH	LIKE MODER- ATELY	LIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	DISLIKE SLIGHTLY	DISLIKE MODER- ATELY	DISLIKE VERY MUCH	DISLIKE EXTREMELY
Milk	LIKE EXTREMELY	LIKE VERY MUCH	LIKE MODER- ATELY	LIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	DISLIKE SLIGHTLY	DISLIKE MODER- ATELY	DISLIKE VERY MUCH	DISLIKE EXTREMELY
Coffee	LIKE EXTREMELY	LIKE VERY MUCH	LIKE MODER- ATELY	LIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	DISLIKE SLIGHTLY	DISLIKE MODER- ATELY	DISLIKE VERY MUCH	DISLIKE EXTREMELY
Lettuce wedges	LIKE EXTREMELY	LIKE VERY MUCH	LIKE MODER- ATELY	LIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	DISLIKE SLIGHTLY	DISLIKE MODER- ATELY	DISLIKE VERY MUCH	DISLIKE EXTREMELY

36. Circle the cooking time and/or the temperature which you feel should be used in preparing each of the following items:

Baked Potato

Cooking Time:	1/2 hour	1/2 to 1 hour	1-1 1/2 hours	1 1/2-2 hours	2-2 1/2 hours
Cooking Temp:	0-100°	100-200°	200-300°	300-400°	400-500°

Corn on the cob should boil:

Cooking Time:	0-10 min.	10-20 min.	20-30 min.	30-40 min.	40-50 min.
---------------	-----------	------------	------------	------------	------------

Corned beef

Cooking Time:	under 1 hour	1-2 hours	2-3 hours	3-4 hours	over 4 hours
Cooking Temp:	boil	simmer			

Deep fried fresh fish

Cooking Time:	2-4 min.	5-10 min.	11-19 min.	20-25 min.	26-28 min.
Cooking Temp:	0-100°	100-200°	200-300°	300-400°	400-500°

Macaroni

Cooking Time:	5-10 min.	10-20 min.	20-30 min.	30-40 min.	40-45 min.
Cooking Temp:	boil	simmer			

DISTRIBUTION

Chief, Research and Engineering Department of the Army The Pentagon, Washington 25, D.C.	(1)	Chief, Bureau of Supplies and Accounts (W/2) Department of the Navy Washington 25, D.C.	(1)
Chief, Research Analysis Division Army Research Officer Office, Chief, Research and Dev. Department of the Army Washington 25, D.C.	(1)	Commanding Officer U.S. Navy Subsistence Office Naval Weapons Plant Washington 25, D.C.	(1)
Chief, Bureau of Supplies and Accounts (O/W) Department of the Navy Washington 25, D.C.	(1)	Officer-in-Charge U. S. Naval Supply Center Naval Supply Depot Bayonne, N. J.	(1)
Commanding General ATTN: Tech. Information Branch Tech. Services Division QM R&E Command, U.S. Army QM R&E Center Natick, Mass.	(40)	Chief, Signal Corps Packaging Std. Ofc. U. S. Army Signal Supply Agency Tobyhanna Signal Depot Tobyhanna, Penn. (Container Reports)	(1)
Commanding Officer Field Evaluation Agency QM R&E Command, U.S. Army Ft. Lee, Va.	(1)	Librarian QM Technical Library Ft. Lee, Va.	(1)
Commanding Officer U.S. Army Medical Research and Nutrition Lab., Fitzsimons Gen. Hosp. Denver, Colo. (Food Reports)	(1)	Commandant Hq., U.S. Marine Corps Washington 25, D.C. (O.I.C. Supply Br.)	(1)
The Library U.S. Army Leadership HRU P.O. Box 787 Presidio of Monterey, Calif. (Food Reports)	(1)	British Joint Services Mission (Army Staff) British Embassy Annexe Washington 8, D.C.	(1)
Defense Research Member Canadian Joint Staff 2450 Massachusetts Ave., N. W. Washington, D.C.	(4)	Major L. G. Clark Australian Military Mission 2001 Connecticut Ave., N.W. Box 4837 Washington 8, D.C.	(3)

AFPCI

Commandant, Ass't. Commandant, Scientific Director, Dep. Scientific Director, Library,
All office, division, and branch chiefs, Navy Liaison Officer, Air Force Liaison
Officer (6).

<p>UNCLASSIFIED</p> <p>1. Cooks 2. Tests 3. Food Acceptance</p> <p>I. Kindhoven J.</p>	<p>AD _____ Accession No. _____ QM Food & Container Institute for the Armed Forces, QM Research & Engineering Command, U. S. Army, Chicago 9, QMFCIAF Rpt. No. 37-62 Date Nov. 1962 Proj. No. 7-84-15-007 PP 50 ibl 14 fig. 2</p> <p>A Questionnaire Study of Army Mess by Jan Kindhoven</p> <p>The Army feeding program draws on the resources of numerous personnel in various occupational specialties to pro- vide mess halls, throughout Continental United States, with quality ingredients</p> <p>Primary Field: Food Acceptance Secondary Field(s): Tests</p>	<p>UNCLASSIFIED</p> <p>1. Cooks 2. Tests 3. Food Acceptance</p> <p>I. Kindhoven J.</p>
<p>UNCLASSIFIED</p> <p>1. Cooks 2. Tests 3. Food Acceptance</p> <p>I. Kindhoven J.</p>	<p>AD _____ Accession No. _____ QM Food & Container Institute for the Armed Forces, QM Research & Engineering Command, U. S. Army, Chicago 9, QMFCIAF Rpt. No. 37-62 Date Nov. 1962 Proj. No. 7-84-15-007 PP 50 ibl 14 fig. 2</p> <p>A Questionnaire Study of Army Mess by Jan Kindhoven</p> <p>The Army feeding program draws on the resources of numerous personnel in various occupational specialties to pro- vide mess halls, throughout Continental United States, with quality ingredients</p> <p>Primary Field: Food Acceptance Secondary Field(s): Tests</p>	<p>UNCLASSIFIED</p> <p>1. Cooks 2. Tests 3. Food Acceptance</p> <p>I. Kindhoven J.</p>

for the soldiers' meals. A fairly good proportion of soldiers reject one or more of the dishes at meals because the foods are poorly prepared. The quality of food preparation is the responsibility of the mess and a questionnaire study was conducted with mess personnel to determine factors that might affect preparation. Human factors explored in this pilot study were broadly classified in four categories: training and experience, job interest, opinions of mess personnel, and mess practices.

for the soldiers' meals. A fairly good proportion of soldiers reject one or more of the dishes at meals because the foods are poorly prepared. The quality of food preparation is the responsibility of the mess and a questionnaire study was conducted with mess personnel to determine factors that might affect preparation. Human factors explored in this pilot study were broadly classified in four categories: training and experience, job interest, opinions of mess personnel, and mess practices.

for the soldiers' meals. A fairly good proportion of soldiers reject one or more of the dishes at meals because the foods are poorly prepared. The quality of food preparation is the responsibility of the mess and a questionnaire study was conducted with mess personnel to determine factors that might affect preparation. Human factors explored in this pilot study were broadly classified in four categories: training and experience, job interest, opinions of mess personnel, and mess practices.

for the soldiers' meals. A fairly good proportion of soldiers reject one or more of the dishes at meals because the foods are poorly prepared. The quality of food preparation is the responsibility of the mess and a questionnaire study was conducted with mess personnel to determine factors that might affect preparation. Human factors explored in this pilot study were broadly classified in four categories: training and experience, job interest, opinions of mess personnel, and mess practices.